SUMAKE®
MAKE JOBS BETTER THAN EVER

OPERATION AND MAINTENANCE MANUAL

ITEM NO.: SMT-C3
SMART CONTROLLERS ARE COMPATIBLE WITH SMT-Bxx SERIES TRANSDUCERIZED DC ELECTRIC TORQUE AND ANGLE CONTROLLED SCREWDRIVER

MANUAL
MANUAL

iDAS
iDAS

Smart Controller & DC Transducerized Screwdrivers CATALOG

SUMAKE

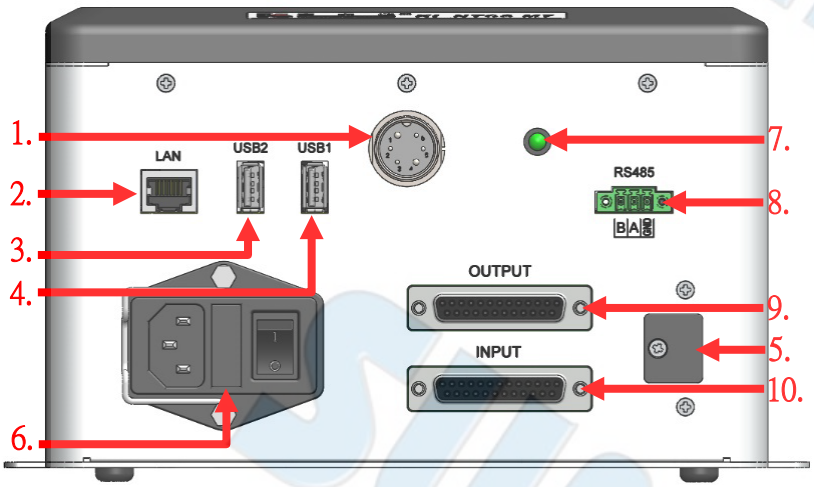
INDEX

1. Product specification introduction

Model	SMT-C3		
Import Voltage	AC 115V / 230V		
Import Frequency	50 - 60Hz		
Import Current	6.3A		
Import Voltage	DC 40V		
Export Current	Max 9A		
Export Power	360W		
Size (mm)	210*185*134		
Weight (g)	3467		
DC screwdriver model:	SMT-B5I	Working Time	1s ON / 3s OFF
	SMT-B10SI(24ISIH)(30SI)		1s ON / 3s OFF
	SMT-B30I(50I)(70I)		1s ON / 3s OFF
	SMT-B120I(180I)(250I)		1s ON / 3s OFF
	SMT-B400I(600IW)		1s ON / 3s OFF

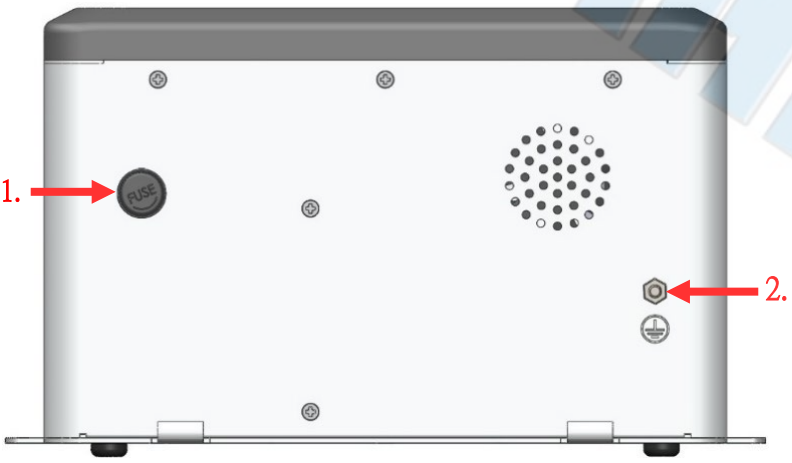
2. Appearance

2.1 Panel



2.2 Bottom

1	Tool connection seat
2	Wired communication port
3	Export/configuration file export/import/update software/scanner for lock data, USB type-A
4	Export/configuration file export/import/update software/
5	scanner for lock data, USB type A
6	Power cord socket and power switch
7	LED Indicator: The lights will turn on for normal operation and standby/sleep mode. If the lights do not turn on, it indicates a malfunction.
8	Prcol export port
9	Export screwdriver signal port
10	Import control screwdriver signal port



2.3 Upper cover

1.DC fuse seat (incl. 15A fuse)
2. Grounding terminal seat (FG)

3. First page

Homepage Functions	Description
Operation	Displays fastening information, screwdriver status, barcode, input/output, and function buttons
Information	Displays tool, controller, and manual download information.
Login	Access the permission management page with role-based usage via account and password.

4. Dashboard

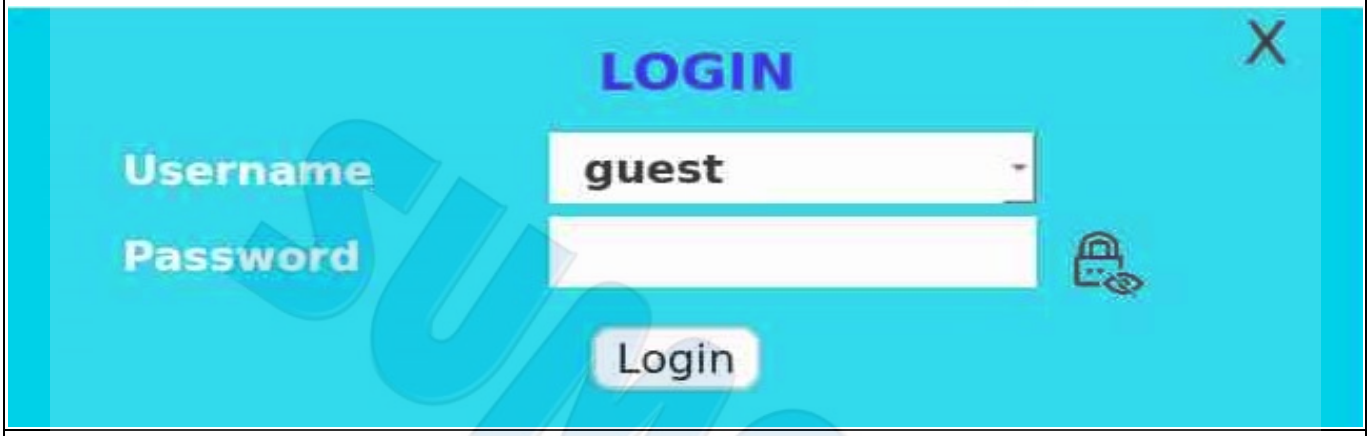
4-1. Login

Operation

1. Before Login：Stays on the monitoring view (homepage icons only show: Fastening Results / Information / Login).

2. Login Account：**guest**　Password: 0000 (default value)

3. Select Login



Login

1. Enter Homepage：Available functions: Operation / Job Edit / Data / Setting / Information / Graph / Logout

Logout：Exit the permission-based operation page and return to the monitoring view.

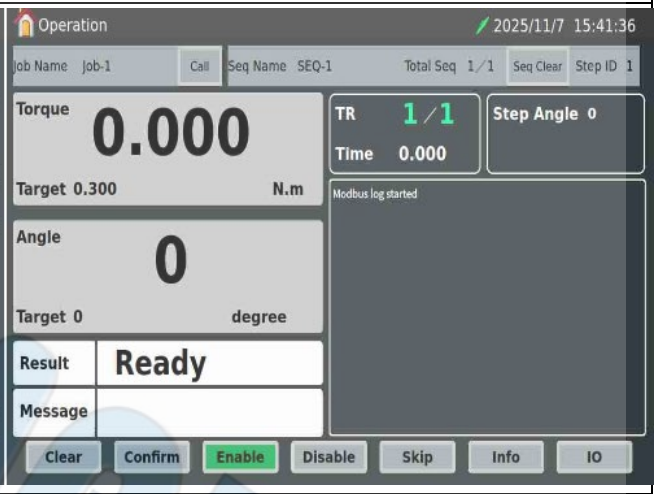
5. Function List

5-1. Fastening Results

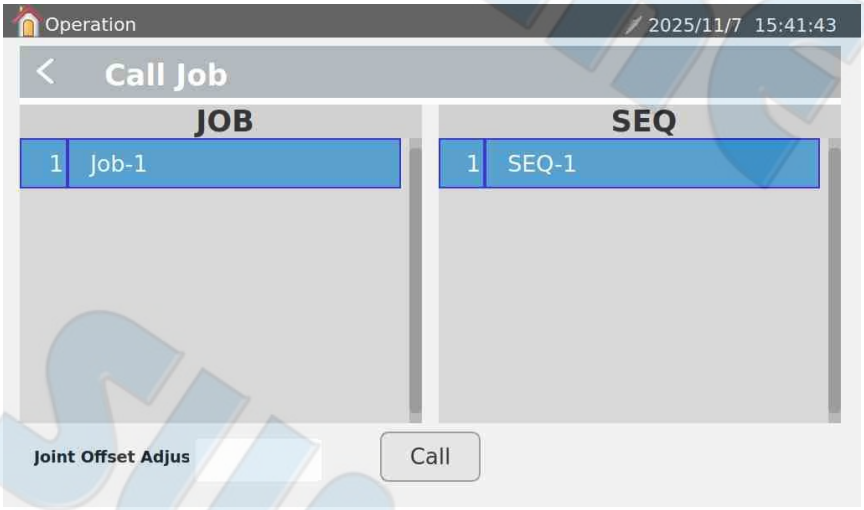
Homepage Functions	Description
1. Return to Main Screen	Tap to return to the main screen.
2. Work Status	Enabled: Tool is operational. Disabled: Tool is prohibited from running; screwdriver display is dimmed.
3. System Time	Displays system time.
4. Job Name	Displays the currently executed job name.
5. Call	Call other jobs / DEMO
6. Process Name	Displays the current process name.
7. Total seq	Current process number / total Total seq.
8. Seq Clear	Reset to the first process.
9. Step ID	Displays the current step ID.
10. Target Torque	Displays the set target torque.
11. Torque Value	Displays torque value during operation/fastening.
12. Torque Unit	Displays the configured torque unit.
13. TR	Displays current screw count / total screw count.
14. Fastening Time	Displays total fastening time.
15. Threshold Angle	Displays the set threshold angle.
16. Step Angle	Displays step angle during operation.
17. RPM	Displays rotation speed during operation.
18. Target Angle	Displays the set target angle.
19. Total Angle	Displays total angle during operation.
20. Barcode	Displays scanned barcode.
21. Fastening Result	Displays fastening status (READY, OK, NG, NS, OK-SEQ, IOK-JOB, etc.).
22. Messages	Displays fastening messages, controller errors, or system interpretation messages.
23. I/O Display/ Chart/Modbus	Can switch to displays input/output indicator lights or shows charts or Modbus.
24. Control Functions	1. Clear Screw Count：Resets the screw count. 2. Confirm：Clears the current status. 3. Enable：Tool is operational / Tool is enabled. 4. Disable：Tool operation is prohibited. 5. Skip：Skips the current process step. 6. Information：Displays fastening job settings. 7. Input / Output & Chart& Modbus：Click to toggle between input/output signals or charts or Modbus。

5-1-1. Charts & Modbus / Retrieval / Information Page ntroduction

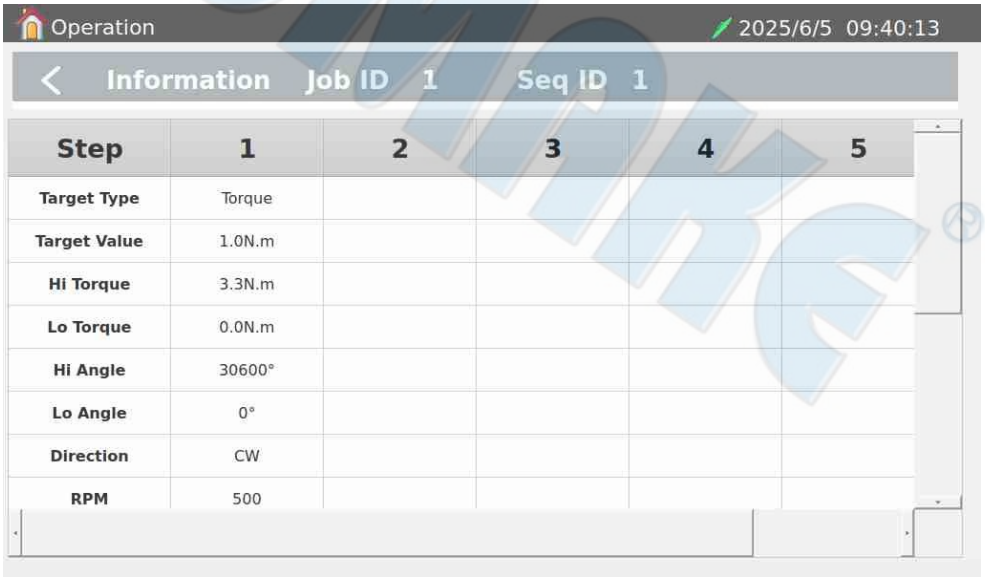
1. Chart	Switch to view Charts / Modbus.



2. Call	Call Other Job Compensated Target Torque: Enter the actual torque value to automatically calculate and populate the STEP compensation.

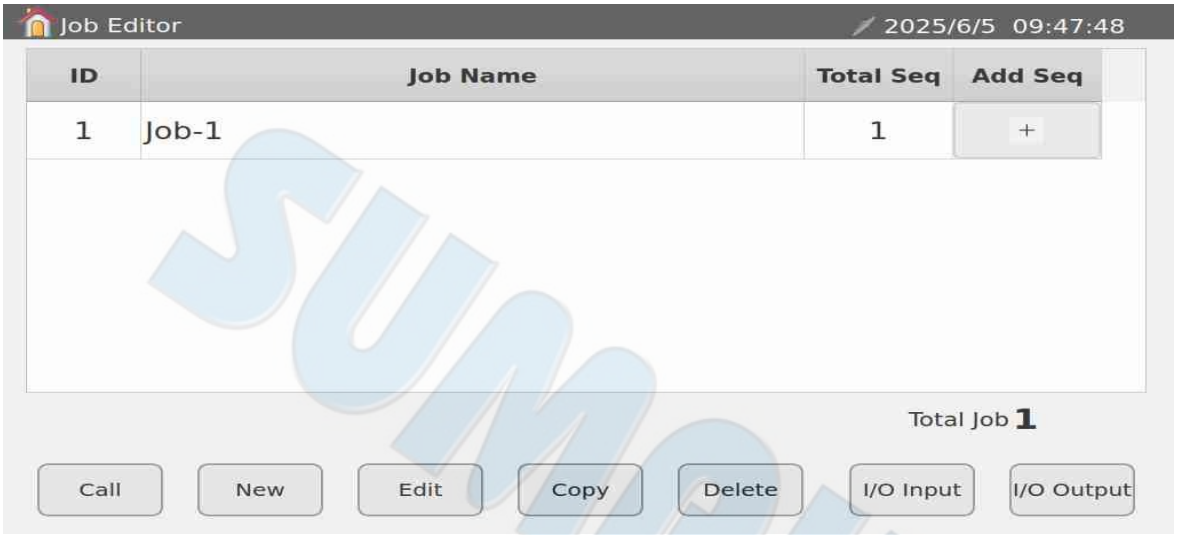


3. Information	Fastening Step Parameter List



5-2. Job Edit

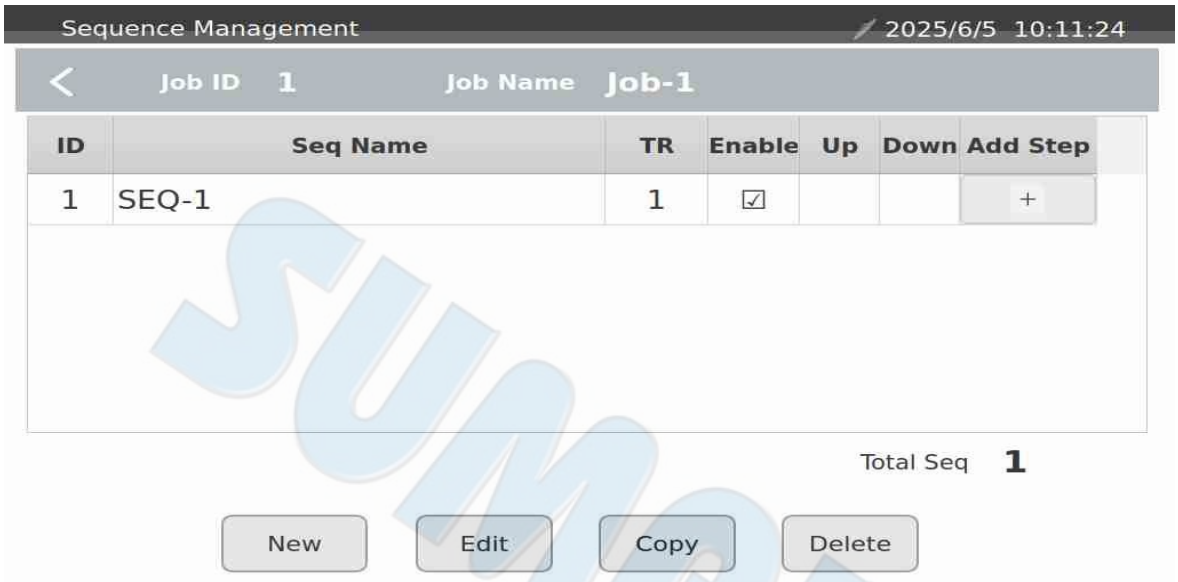
5-2-1. Job Edit



Job Edit	Description
Call	Open Job Call, call fastening job.
Add	Open Add Job interface.
Edit	Edit the selected job.
Copy	Copy the selected job, including processes and steps.
Delete	Delete the selected job.
I/O Import	Open I/O Input Settings interface.
I/O Export	Open I/O Output Settings interface.
+	Enter next level (Process Management).

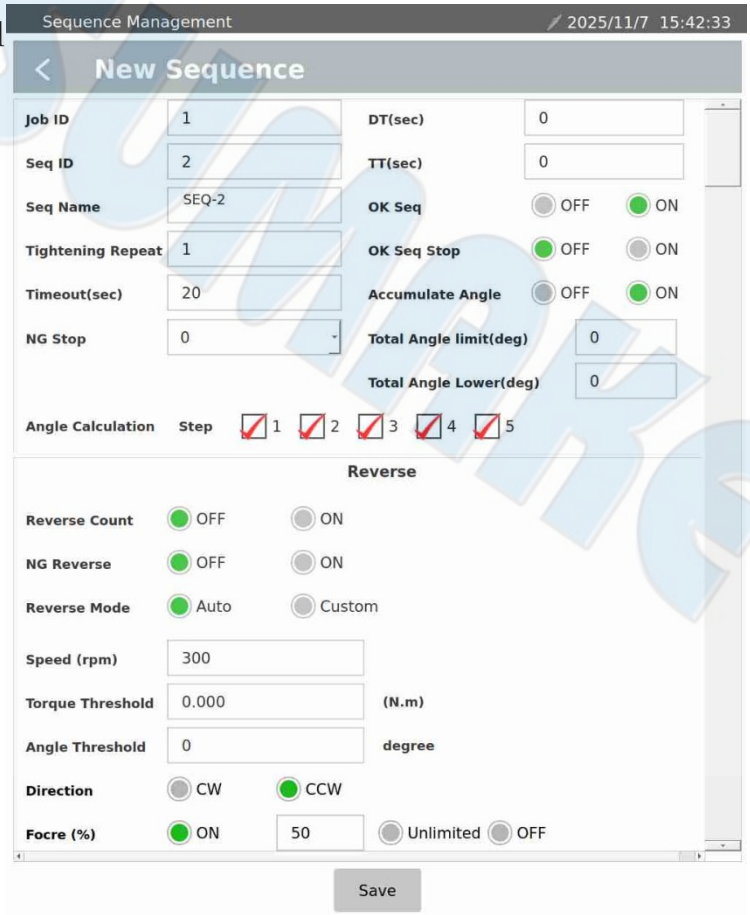
Add Job

Add Job	Description
Job ID	Displays the newly added Job ID (e.g., JOB-2 as shown in the example).
Job Name	Supports English (uppercase & lowercase), numbers, and symbols.
Job Completion Output (OK Job)	Off： No completion output (OK-JOB). On： Completion output (OK-JOB) is enabled. Default：On
OK Job Stop	Off：When the action is completed, the screwdriver will not stop, and it will not affect the next startup. On：When the fastening job is completed, the screwdriver will be immediately locked. The user must press the "Confirm" key to release forward rotation. (For I/O control, this corresponds to an external Confirm signal.) Default: Off



Process Management	Description
Job ID / Name	Displays the Job ID/Name selected from the previous page (Example: 1 / JOB-1)
Screw Count	Displays the screw count of the process.
□	Checked: the process will be executed. Unchecked: the process will not be executed.
New	Opens the interface to New a new process.
Edit	Edits the selected process.
Copy	Copies the selected process along with its steps.
Delete	Deletes the selected process.
+	Enters the next level (Step Management).

New Seq



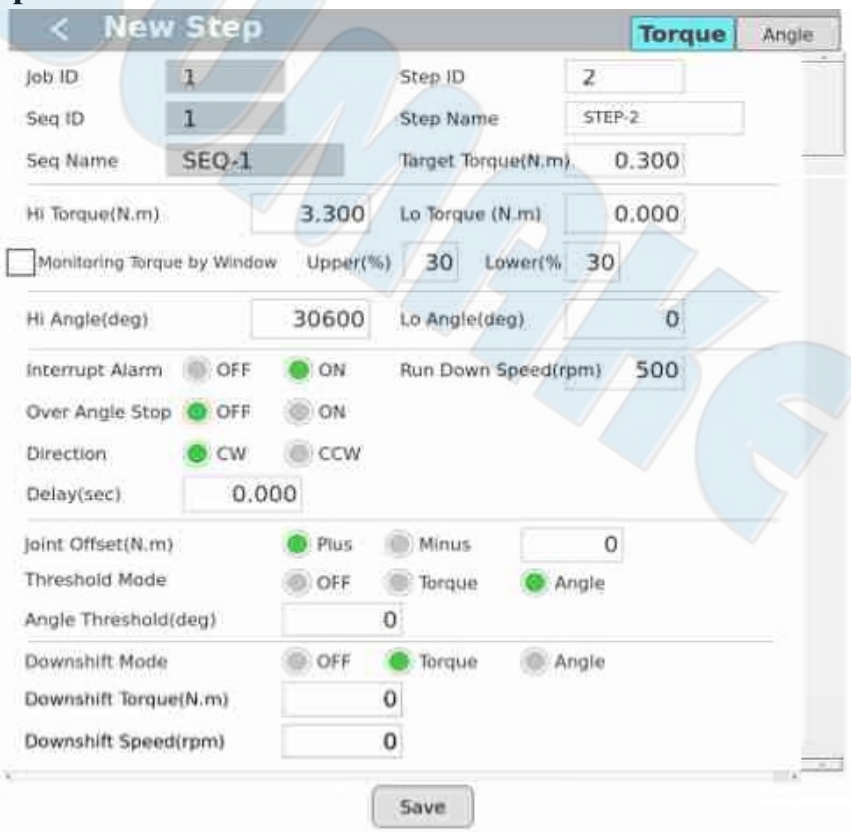
Add Step	Description
Job ID	Select Edit job ID.
Seq ID	Select Edit Seq ID.
Seq Name	Support English (capital and small characters), numbers and symbols.
Tightenimg Repeal	Total lock screw number in Setting Sequence.
Timeout (sec)	Set the operation time for a single screw. (Range: 0.1–60.0 sec, Default: 20 sec)
Stop on NG	Set the processing method selected when screwdriver lock is wrong: No / 1-9 1~9 : Setting 1: Lock screwdriver if trigger-once lock is error, Setting 2: Continuous lock error; lock screwdriver if trigger-twice lock is error… and so on; if anyone lock is OK, make re-calculation. Enable function 1~9: When the error signal "NS" appears, the screwdriver is locked immediately; user needs to press the "Confirm" button to confirm to release. (For the I/O part, confirm the Confirm signal externally, and confirm that the screwdriver can still remove the screw) No: When the error signal "NG" appears, the screwdriver won't stop; it won't affect the next start of the screwdriver, only a warning will be issued. Default: 0
DT: Screw Waiting Time (sec)	Screw Interval Time (DT): The time between receiving a judgment result (e.g., OK, NG) for one screw and triggering the next screw fastening. If the waiting time exceeds the set value, the controller will display a warning message/icon and sound an alarm until fastening is restarted. (Range: 1–99 sec, Default: 0 = disabled)
TT: Sequence Completion Time (sec)	Sequence Completion Time (TT): The total time from the first trigger in a sequence to the fastening of the last screw. If the sequence completion time exceeds the set value, the controller will display a warning message/icon and sound an alarm until all screws in the sequence are fastened. (Range: 1–6000 sec, Default: 0 = disabled)
OK Seq: Sequence OK	OFF: No sequence completion signal (OK-SEQ) is export. ON: Export sequence completion signal (OK-SEQ). Default: ON.
OK Seq Sto: Stop Sequence on OK	The processing method selected when the total number of screws in the Setting Sequence is counted to complete the action. OFF: The screwdriver won't stop when the action is completed; nor will it affect the next start of the screwdriver. ON: When the number of Sequence screws is locked, the screwdriver will be locked immediately; user must press the "Confirm" button to confirm that the forward rotation can be released. (If it is the I/O part, it is an external confirmation signal) Default: OFF.
Accumulate: Accumulate Angle	Accumulate Angle: Set whether clockwise and counterclockwise angles offset each other in accumulation. (Default: OFF)
Upper Total Angle Limit (°)	Sets the upper limit of the total angle for the process. (Range: 1–30600; 0 = Disabled; Default: 0)
Lower Total Angle Limit (°)	Sets the lower limit of the total angle for the process. (Range: 1–30600; 0 = Disabled; Default: 0)
Angle Calculation	□ If unchecked, this step's angle will not be included.
Reverse Co: Reverse Count	OFF: Disable reverse screw counting. ON: Enable reverse screw counting. (Default: OFF)
NG Reverse	Set whether to perform screw removal before re-tightening when fastening fails. (Default: OFF)
Reverse Mode	Auto: Reverse torque = max torque × 1.1, Direction = opposite of last step, Speed = 50% of max driver speed, Threshold torque = 0, Threshold angle = 0. Custom: Execute based on user-defined parameters. (Default: Auto)
Speed (RPM)	Set the driver speed for screw removal. (Range: see driver specification, Default: 300 RPM)
Torque Threshold	Set the torque threshold for detecting screw removal.

	If reverse screw count is enabled, counting starts only after exceeding this torque. (Default: 0.000)
Angle Threshold	Set the angle threshold for screw removal. (Default: 0 = disabled)
Direction	Select Counterclockwise / Clockwise.
Focre (%)	Reverse Focre (Manual Setting): Set the maximum force for screw removal. ● On (1–100%) ● Unlimited ● Off Default: On (50%)

5-2-3. Step

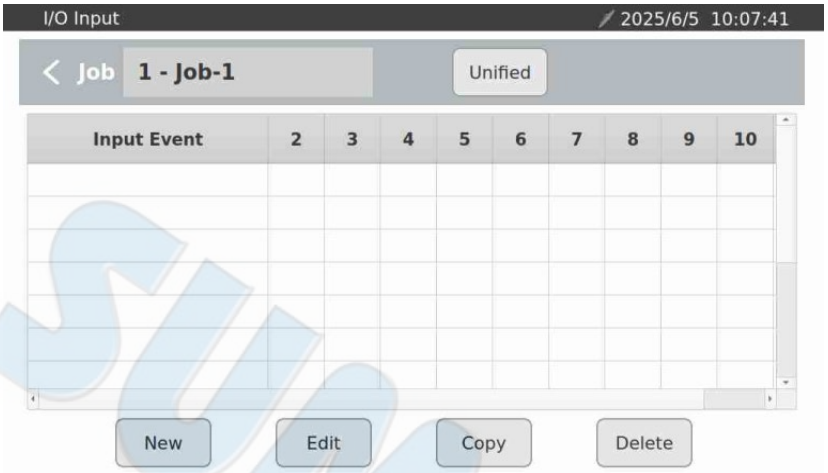
Step Setting	Description
ID / Name:	Display the selected Job ID, Sequence ID, and Job Name from the previous page. (Example: 1 / 1 / JOB-1)
New	Open the **New Step**interface.
Edit	Edit the selected step
Copy	Copy the selected step.
Delete	Delete the selected step.

New Step

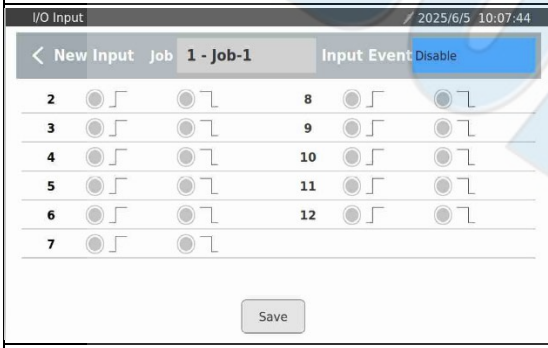


Step Parameters	Description
Job ID	Display the selected Edit job ID. (The example in the figure shows 1)
Seq ID	Display Sequence ID. (The example in the figure shows 1)
Seq Name	Display the selected **Sequence Name**. (Example: SEQ-1)
Step ID	Display Step ID.
Step Name	Support English (capital and small characters), numbers and symbols
Target Torque	Set the screwdriver **Target Torque** value.
Hi Torque	The upper limit of Setting Torque, the upper limit cannot exceed 110% of the maximum torque,
Lo Torque	The lower limit of torque setting; the default is 0.0 N-m.
Monitoring Torque by Window	☐ When checked, the upper and lower limits are set in percentage (%).
Upper(%)	The upper limit of angle setting. (Range: 1~30600, default: 30600)
Lower(%)	The lower limit of angle setting. (Range: 0~30599, default: 0)
Intenupt Alarm	If the press plate is released before reaching the tightening target and the motor stops, determine whether to trigger NG warning.
Over Angle Stop	If the tightening target is torque or time, determine whether to stop when exceeding the angle upper limit.
Direction	Set the screwdriver tightening direction: Clockwise (CW) / Counterclockwise (CCW). (Default: Clockwise (CW))
Delay (sec)	Set the delay time before proceeding to the next step after reaching the target.
Rotation Speed (RPM)	Rotation Speed (RPM): Set the screwdriver rotation speed (revolutions per minute).
Joint Offset	Positive: Actual torque increases. Negative: Actual torque decreases. Adjust this value for fine adjustment; making the actual torque value of the screwdriver lock is closer to the torque value displayed by the Controller. (KTM torque meter is an optional product) Default: Positive 0.00.
Threshold Mode	OFF: Disable function Torque: Threshold based on torque Angle: Threshold based on angle (Default: OFF)
Threshold Torque Angle	When the torque reaches the set threshold torque value, the controller begins calculating the tightening angle, and stops within the upper/lower torque range = OK.
Angle Threshold (deg)	When the angle reaches the set threshold angle value, the controller begins calculating the tightening angle, and stops within the upper/lower angle range = OK.
Downshift Mode	OFF: Disable function Torque: Deceleration based on torque Angle: Deceleration based on angle (Default: OFF)
Downshift Torque	When the torque reaches the set deceleration torque value, the screwdriver speed will reduce until stopping within the upper/lower torque limit = OK. (Default: 0.0 Nm)
Downshift Angle	When the set deceleration angle value is reached, the screwdriver speed will reduce until stopping within the upper/lower angle limit = OK. (Default: 0)
Downshift Speed (RPM)	Set the screwdriver speed when the deceleration torque value is reached.
Save	Save the settings on this page.

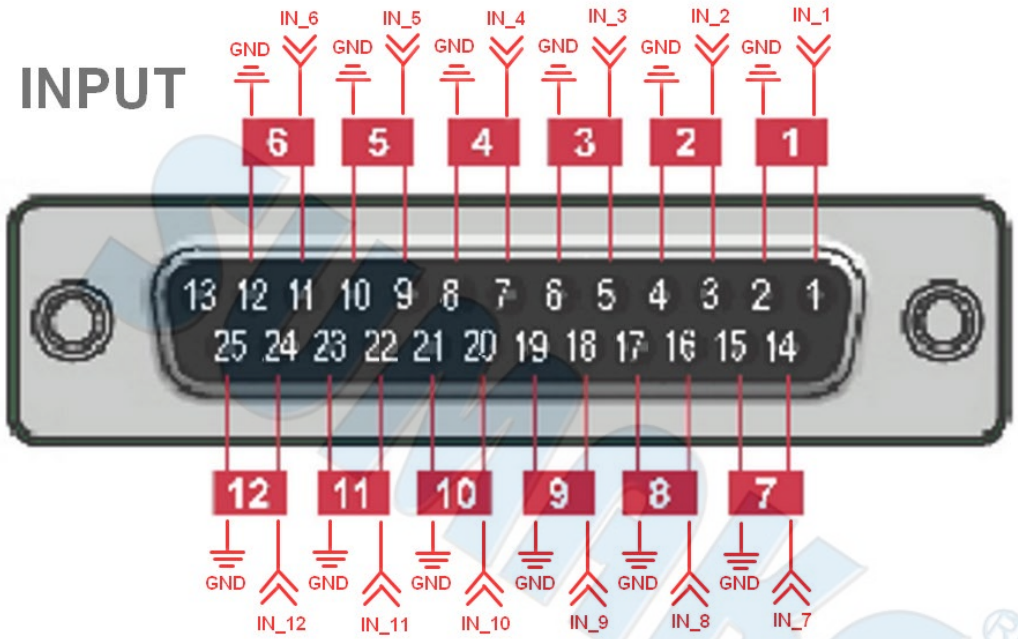
5-2-4. I/O Import



I/O Import	Description
Edit job	Select Execution Job
Unified	When an execution job is selected, the system will run only the parameters of that job. Other preset parameters will not be executed. After selecting a job, click this button (Yellow background / Black text) to enable the All Job function. Click again (White background / Black text) to disable the All Job function.
New	Open the Add Input interface.
Edit	Edit the selected event.
Copy	Copy the selected event.
Delete	Delete the selected event.

Description	
Mode	Event Options
	Description Disable / Enable / Clear / Confirm / Start / Reverse / Sequence Clear / Restart / One-time Detection /Custom 1 / Custom 2 / Custom 3 / Custom 4 / Custom 5
	Signal Selection: Blank (Not selected) / High Level / Low Level
Save	Save: Save the settings on this page.
	When the event "One-time Detection" is selected, the Workpiece Reset Confirmation field will be displayed. No: Workpiece reset does not require pressing the confirmation button. Yes: Workpiece reset requires pressing the confirmation button.

External Input: Binary Switching Job



Steps for Binary Job Switching

1. First Input (IN_1): Short-circuit (ON) → enter binary job switching mode. (Note 1)
2. Convert the target Job ID number into 8-bit binary (decimal → binary). If the binary number has fewer than 8 digits, add leading zeros. (Note 2)
3. The converted 8-bit Job ID is mapped from high to low bit onto Input Group 5 (IN_5) → Input Group 12 (IN_12).
   0→ OFF (Open)
   1→ ON (Short)
4. After confirming that all 8 bits are entered correctly, use Second Input (IN_2): Short-circuit (ON) → confirm and Operation switching.

Note 1:IN_1 = OFF (Open): Normal event mode. IN_1 = ON (Short): Binary job switching mode.

Note 2:

Job ID range: 01 ~ 100

Modbus Job ID: 221

$2^8 = 256$, Binary representation: 8-bit (0000 0000 ~ 1111 1111 = total 256 jobs), covering all current job IDs.

Example: 1. Job(1) → Binary switch to Job(11)

$11_{(10)} \rightarrow 0000\ 1011_{(2)}$

(IN_1)	(IN_2)	(IN_5)	(IN_6)	(IN_7)	(IN_8)	(IN_9)	(IN_10)	(IN_11)	(IN_12)
0	0	0	0	0	0	0	0	0	0
⇒ (IN_1)	(IN_2)	(IN_5)	(IN_6)	(IN_7)	(IN_8)	(IN_9)	(IN_10)	(IN_11)	(IN_12)
1	1	0	0	0	0	1	0	1	1

⇒ Example: Switch to Job (11)

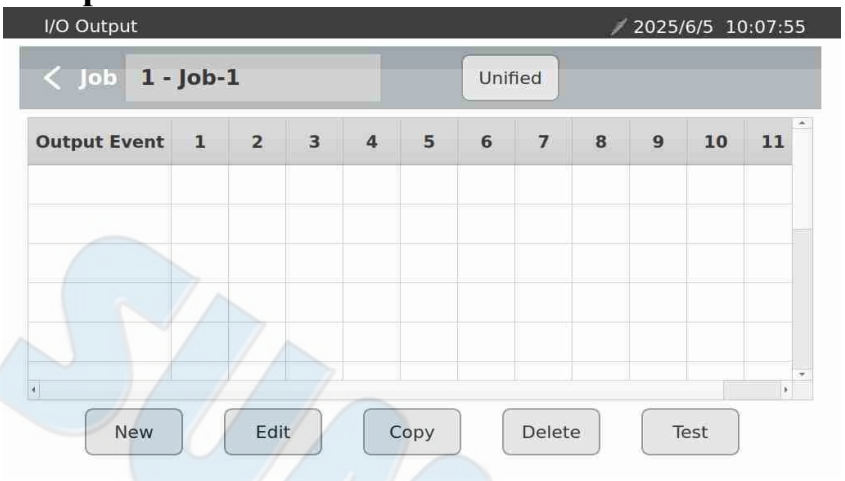
2. Example: From Job (11) → Binary switch to Job (101)

$101_{(10)} \rightarrow 0110\ 0101_{(2)}$

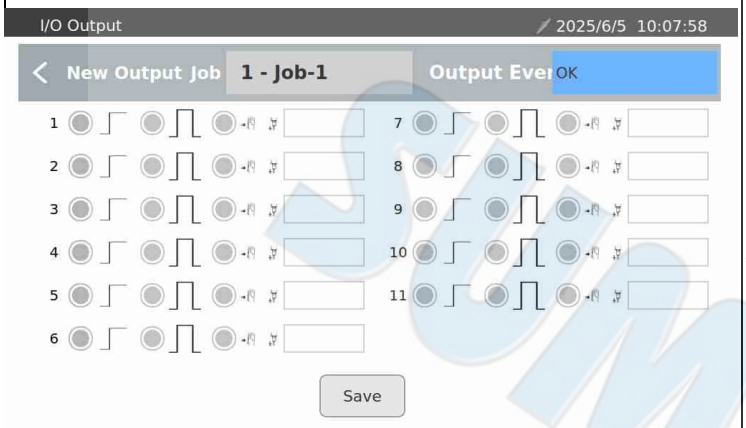
(IN_1)	(IN_2)	(IN_5)	(IN_6)	(IN_7)	(IN_8)	(IN_9)	(IN_10)	(IN_11)	(IN_12)
1	0	0	0	0	0	1	0	1	1
⇒ (IN_1)	(IN_2)	(IN_5)	(IN_6)	(IN_7)	(IN_8)	(IN_9)	(IN_10)	(IN_11)	(IN_12)
1	1	0	1	1	0	0	1	0	1

⇒ Example: Switch to Job (101)

5-2-5. I/O Output

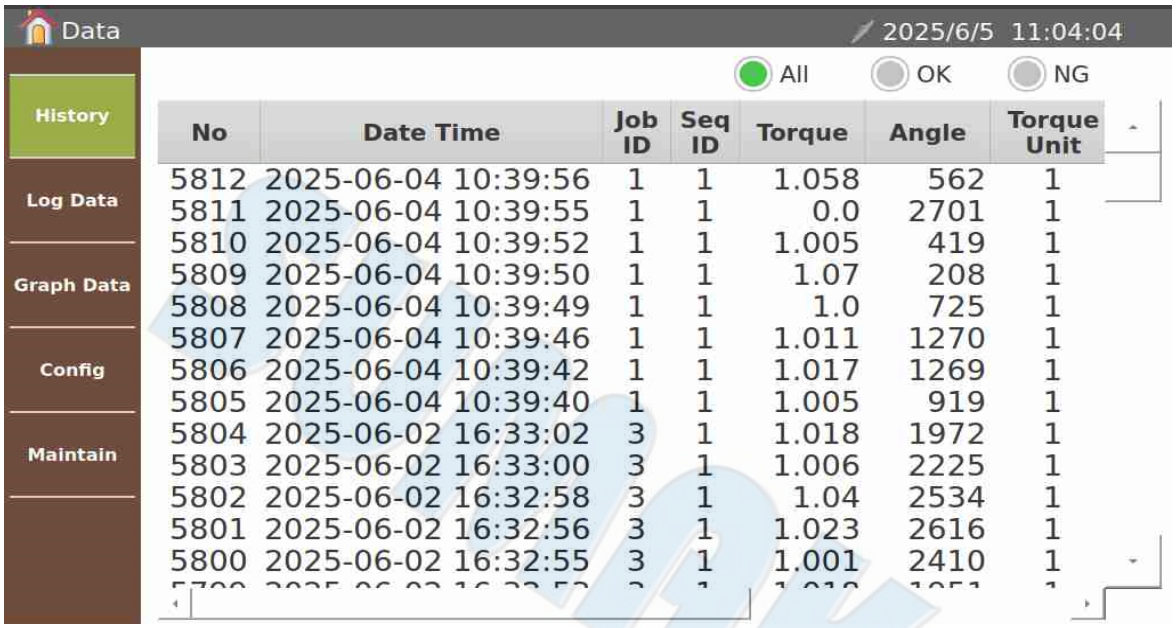


I/O Output	Description
Job	Job Selection
Unified	When a job is selected, only the output parameters of that job will be executed. Other jobs'original output settings remain unchanged. After selecting a job, click this button (Yellow background / Black text) to enable All Job function. Click again (White background / Black text) to disable All Job function.
New	Open the Add Output interface.
Edit	Edit the selected event.
Copy	Copy the selected event.
Delete	Delete the selected event.
Test	Check whether the indicator light is working correctly.

Output Settings	Description
	Select Event, Signal, and Time. Event Options: OK / NG / Over Upper Limit / Under Lower Limit / Sequence Complete Signal / Job Complete Output / Motor Signal / Start Signal / Reverse Screw / Barcode Stop / Barcode / Custom 1 / Custom 2 / Custom 3 / Custom 4 / Custom 5 Signal Modes : Continuous Output: The indicator light remains on when the screwdriver stops. It turns off when the screwdriver starts again. Single Cycle: The indicator light stays on for a duration set by the timer. Start Output: After the screwdriver stops, releasing the activation switch (press plate, downward press, external) will turn off the signal and indicator light. Time Setting: Set the indicator light duration (Range: 100–10,000 ms).
	IO Signal Detection: Independently detect if IO indicator light is abnormal.
	Save the current page configuration.

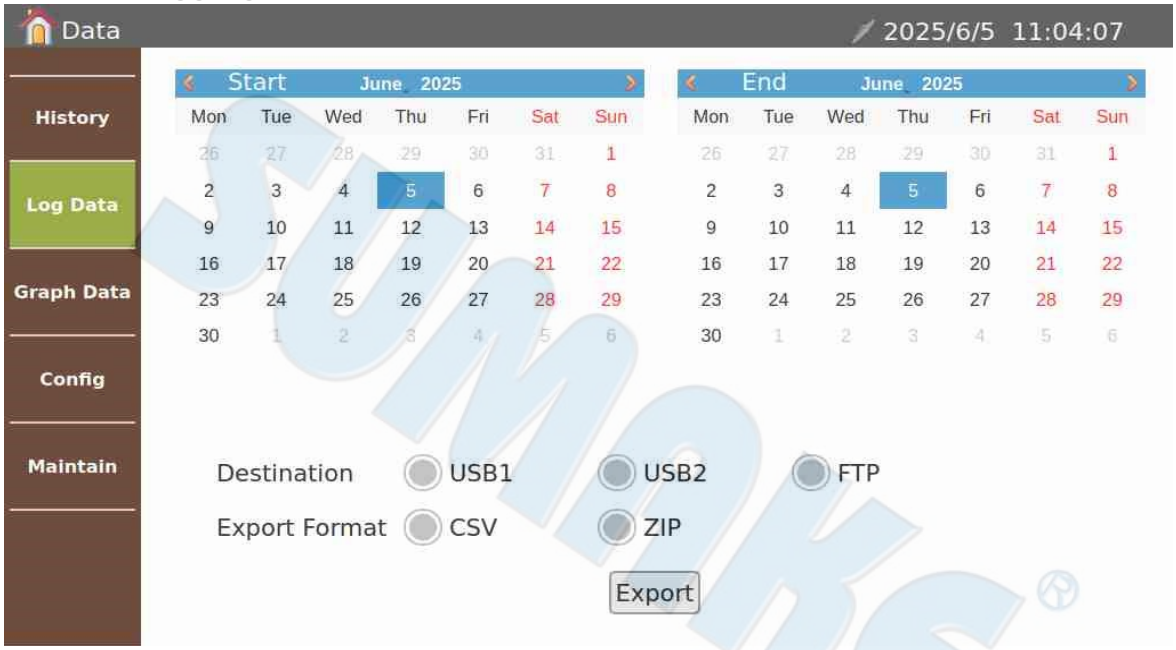
5-3. Data

5-3-1 Historic data



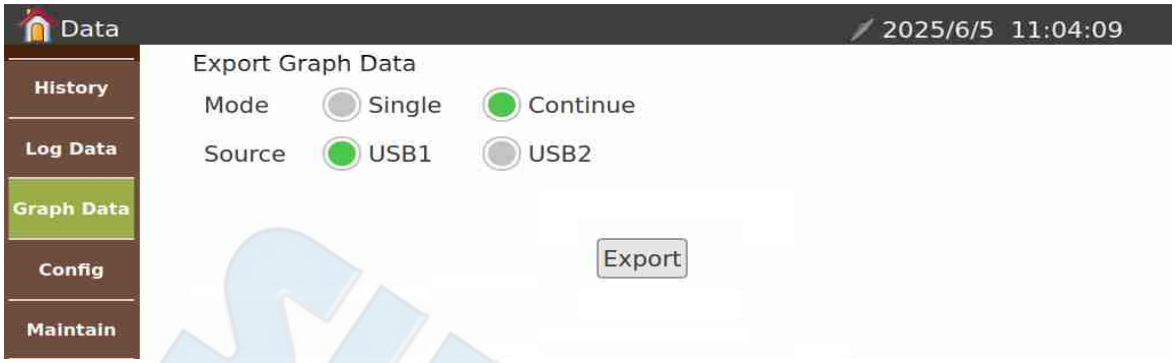
Historic data	Description
Data Status Display:	Choose to display All / OK / NG status.
Historic data	Display the latest 100 records, showing: ID, fastening time, Job ID, Process ID, Torque, Angle, Quantity, Total Quantity, Status, Barcode.

5-3-2 Logging Information



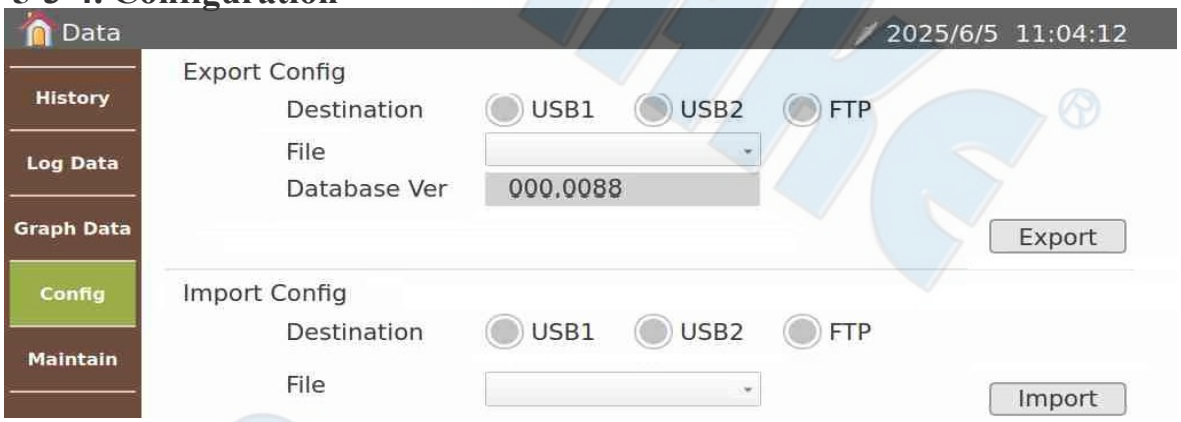
Export Historic Data	Description
Start	Select start date (YYYY/MM/DD) and time. Must select date before time.
End	Select end date (YYYY/MM/DD) and time. Must select date before time.
Destination	Choose export destination: USB1 / USB2 / FTP. FTP File Size Limit: 500MB.
Export Format	Choose CSV / ZIP (compressed)
Export	Export fastening data based on above conditions.

5-3-3. Graphic File Data



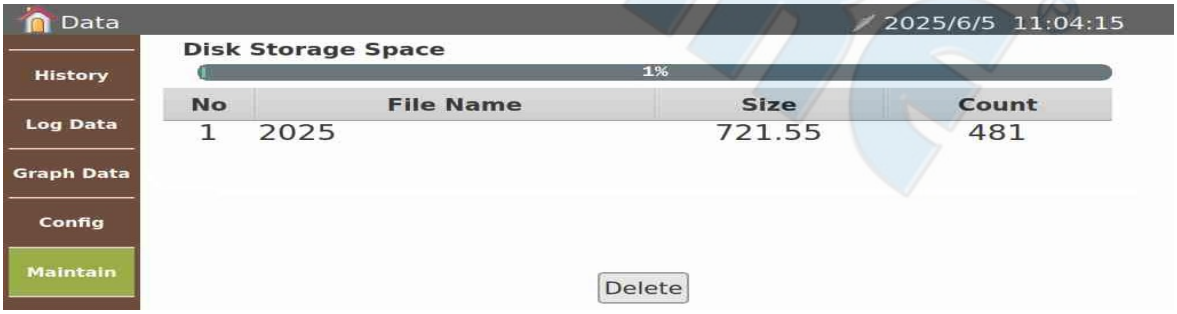
Export Image Data	Description
Mode	Choose Single / Continuous.
Source	Choose export source: USB1 / USB2 / FTP. FTP File Size Limit: 500MB.
Export	Export image data based on above conditions.

5-3-4. Configuration



Export / Import Configuration Settings	Description
Export Destination	Source: Choose Export source: FTP / USB1 / USB2. FTP File Size Limit: 500MB.
Export Configuration File	(cfg)
Database Ver	Displays the current database version.
Export	Export configuration file based on the above conditions.
Import Destination	Import Source: Select import source: FTP / USB1 / USB2. FTP Upload File Size Limit: 500MB.
Import File	Select the configuration file to import (.cfg).
Import	Import the configuration file.

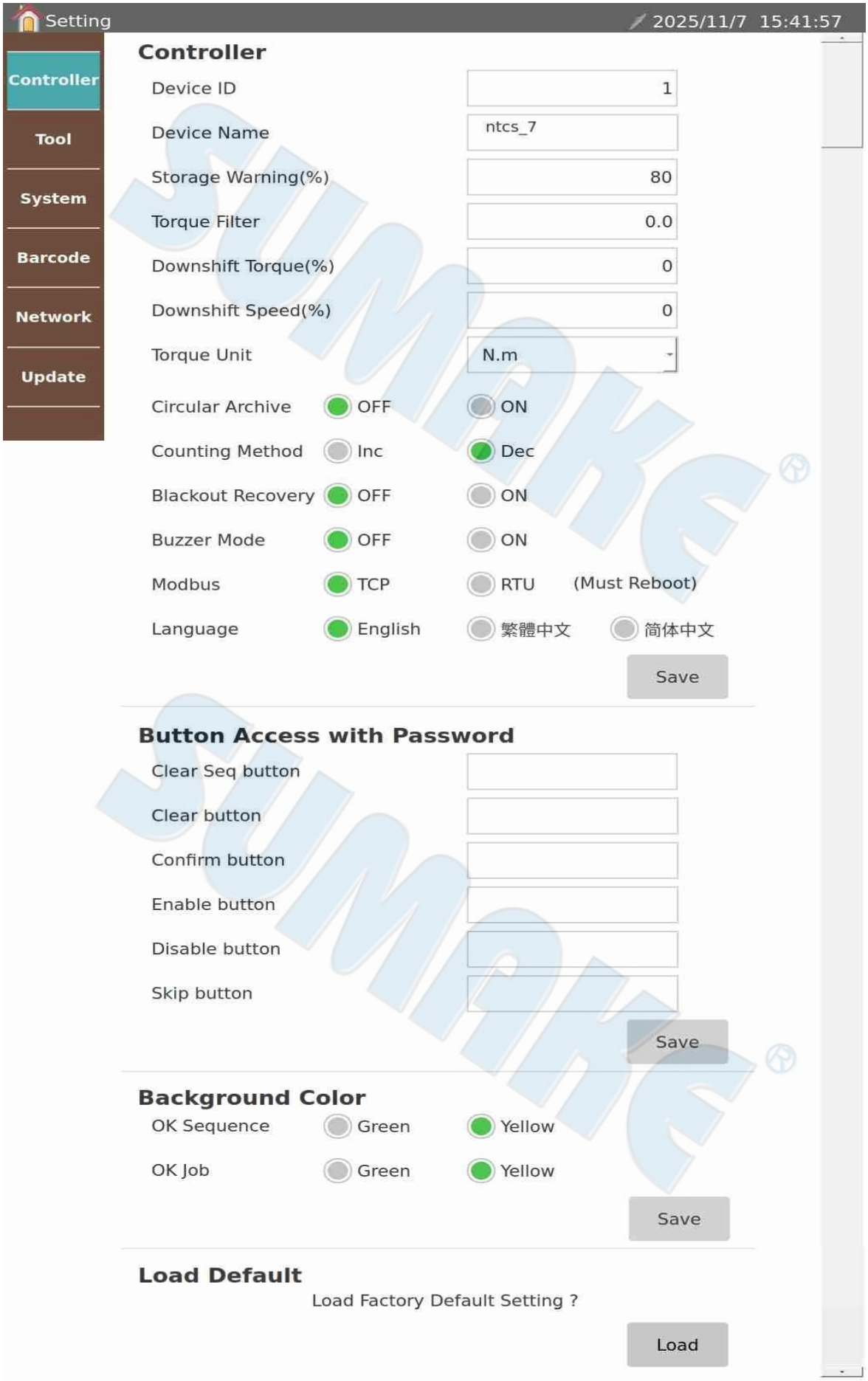
5-3-5. Sustain



Disk Storage Space	Description
Disk Storage Space	Storage Usage: Displays the current disk usage percentage.
Delete	Fastening Data: Deletes fastening records.

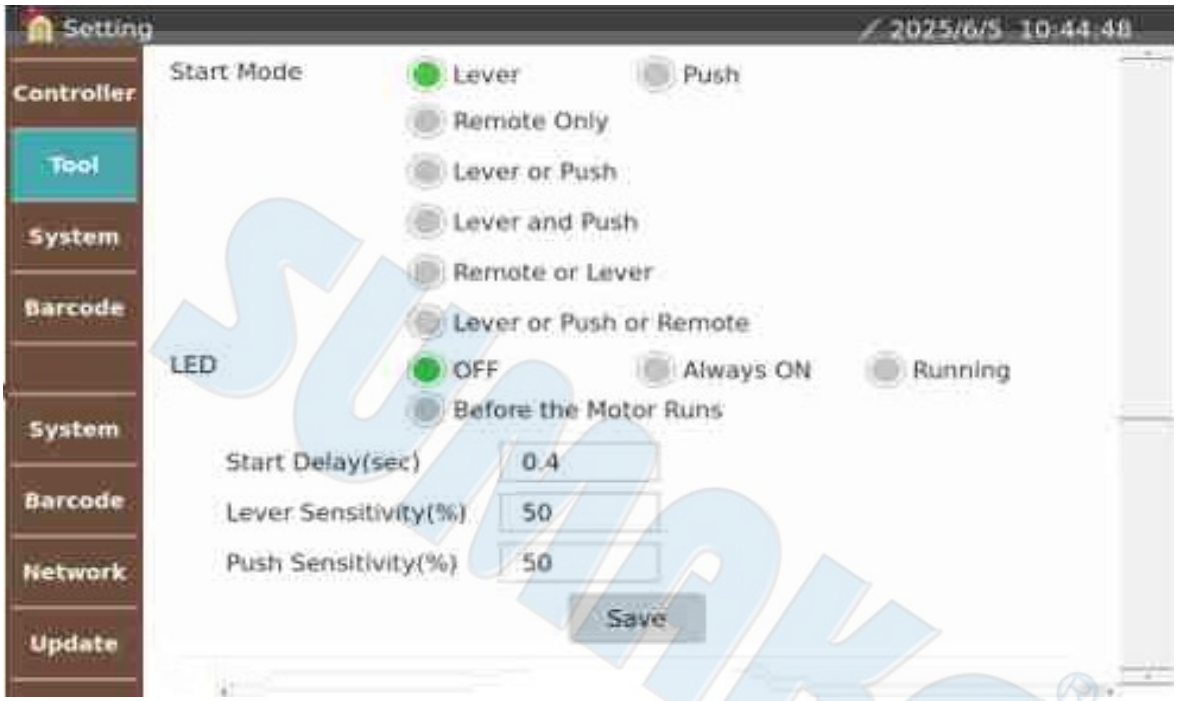
5-4. Setting

5-4-1. Controller



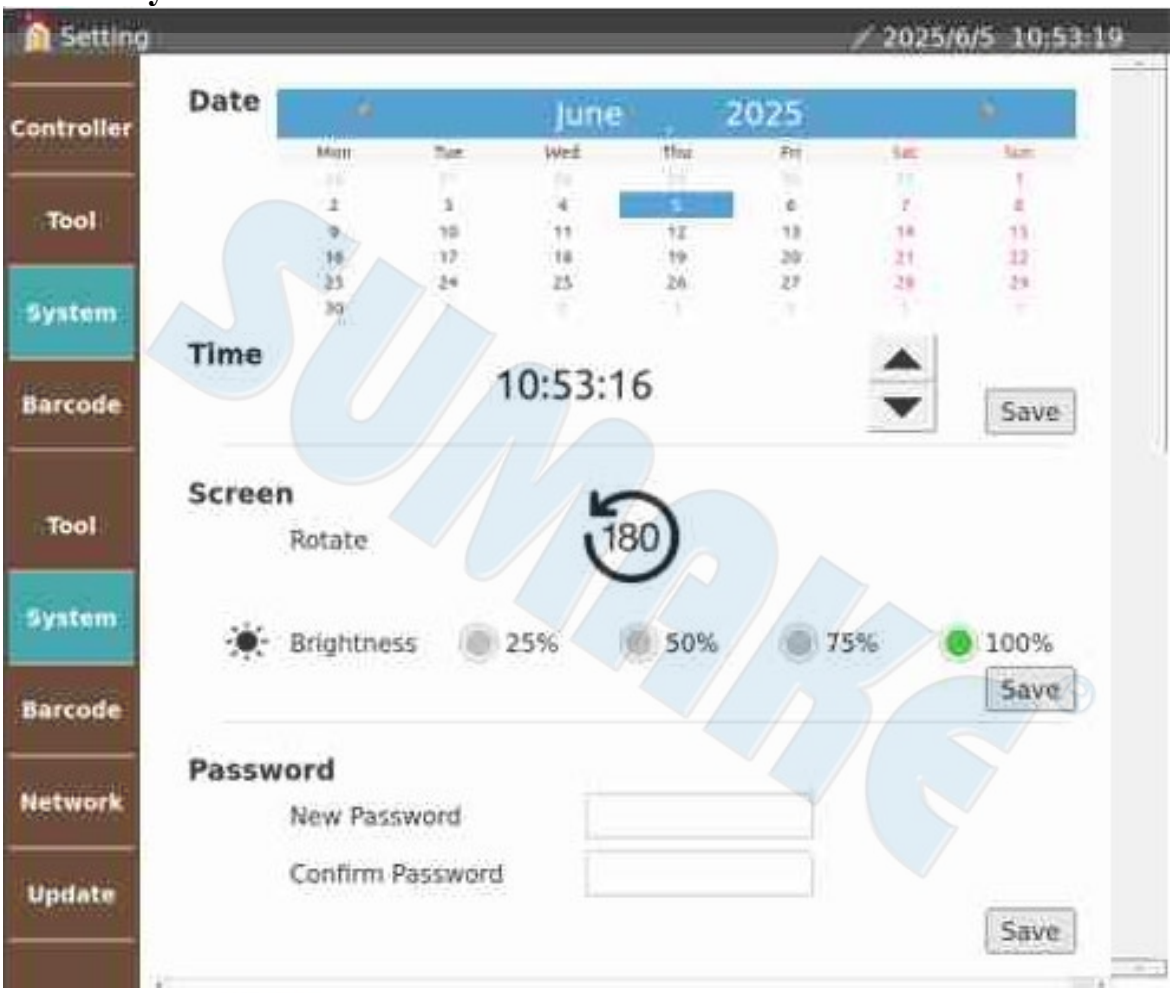
Controller Settings	Description
Device ID	Displays the controller ID. (Range:1~255, Default:1) (Reboot required to take effect)
Device Name	Supports English (uppercase/lowercase), numbers, and symbols. (Range: 1–12 characters, Default: ntcs_7)
Storage Warning (%)	Set disk full warning threshold. (Range: 50%–95%, Default: 80%)
Torque Filter	Set a threshold to filter out smaller torque values.
Downshift Torque (%)	When the last step of a job targets torque, the downshift torque is calculated as a percentage of the target torque. If this parameter is enabled, all jobs will use this value as the basis for downshift torque.
Downshift Speed (%)	When downshift torque is enabled, the corresponding downshift speed is calculated as a percentage of the final step speed. If the calculated speed is lower than the screwdriver's minimum speed, the minimum speed will be used instead.
Torque Unit	kg·m / N·m / kg·cm / lb·in / N·cm.
Circular Archive	When system storage reaches the warning threshold, the system will automatically delete the oldest year's data log files. Default: Off.
Counting Method	Countdown / Count-up: Screw count decreases or increases based on the selected mode. Default: Countdown.
Blackout Recovery	On: Saves the screw count before the controller was powered off. Default: On Off: Saves the job before the controller was powered off.
Buzzer Mode	On / Off: Enable or disable the buzzer sound.
Language	Options: English / Traditional Chinese / Simplified Chinese Default: English
Save	Save the above settings.
Modbus	TCP / RTU. Default: TCP. (Reboot required to take effect)
Button Access with Password	Password protection for command buttons on the real-time monitoring screen: "Clear Seq button"、"Clear button "、"Confirm button "、"Enable button "、"Disable button "、"Skip button " Enter the password to activate these buttons.
Save	Save the above password settings.
Background Color OK Sequence	Process Completion Signal: Choose background color: Yellow / Green Default: Yellow。
Background Color– OK Job	Job Completion Signal: Choose background color: Yellow / Green Default: Yellow
Save	Save the above color settings.
Load Default	Reset: Restore factory default settings. Fastening data will be retained, configuration files will be cleared.
Load	Confirm factory reset.

5-4-2. TOOl



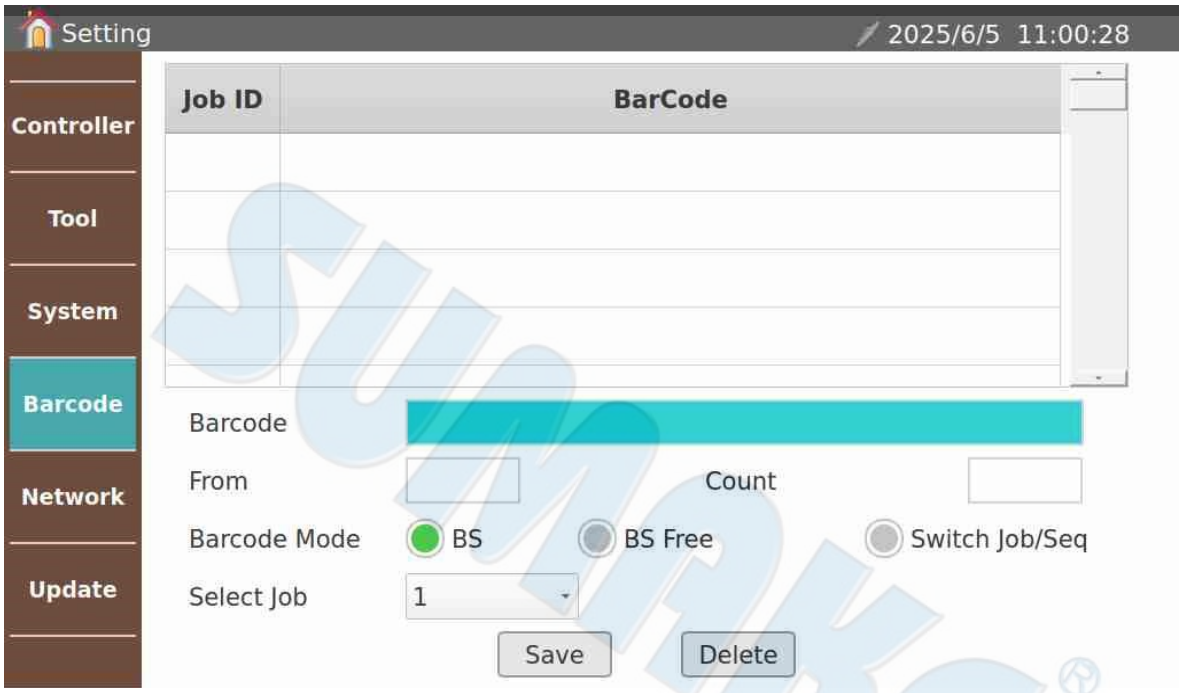
Tool Settings	Description
Start Mode	● Press Plate: Tool operation is triggered by pressing the plate. ● Downward Press: Tool operation is triggered by downward pressure. ● Remote: Tool operation is triggered via IO or communication protocol (e.g., Modbus). ● Press Plate or Downward Press: Tool operation is triggered by either press plate or downward press. ● Press Plate and Downward Press: Tool operation is triggered only when both press plate and downward press are activated simultaneously. ● Press Plate or Remote: Tool operation is triggered by either press plate or IO/communication protocol. ● Press Plate or Downward Press or Remote: Tool operation is triggered by any of the three methods. ● Default: Press Plate
LED: Tool Light Settings	Off: LED remains off. Always On: LED remains on. During Operation: LED lights up while the tool is running. Before Start: LED lights up when the press plate or downward press is activated to a certain level but the motor has not yet started.
Start Delay (Sec)	Delay time before the next process can be started. Unit: Seconds (supports one decimal place)
Lever Sensitivity (%)	Sensitivity threshold for triggering tool operation via press plate. Range: 10%–90% Default: 50%
Push Sensitivity (%)	Sensitivity threshold for triggering tool operation via downward press. Range: 10%–90% Default: 50%
Save	Save the settings on this page.

5-4-3. SysteM



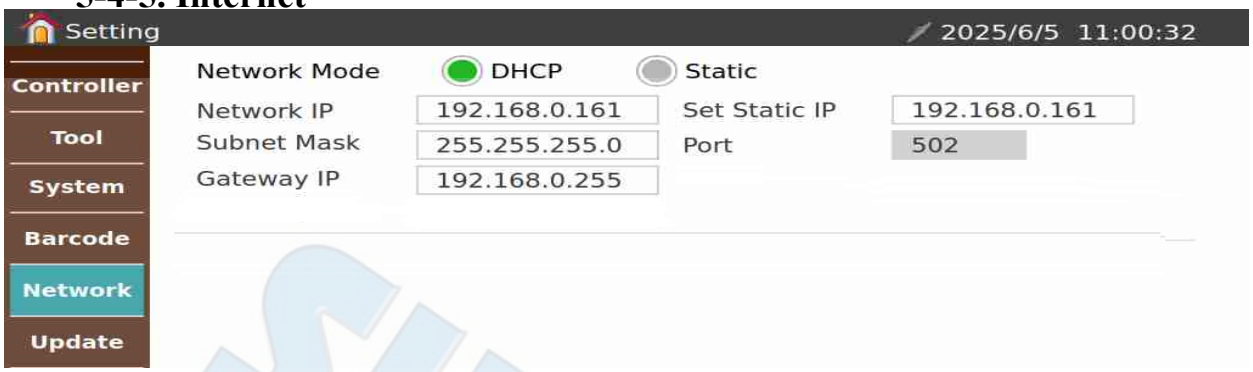
System Date	Description
Date	Select Year / Month / Day.
Time	Select Hour / Minute / Second.
Save	Save the date and time settings.
Screen Settings	**Description**
Screen Rotate	Set the screen to rotate 180 degrees. The controller will automatically reboot after rotation.
LED Brightness	Select brightness level: 25% / 50% / 75% / 100%. Default: 100%
Save	Save the brightness settings.
Password Settings	**Description**
New Password	4–10 digits (numbers only).
Confirm Password	4–10 digits (numbers only).
Save	Save the password settings.

5-4-4. Barcode



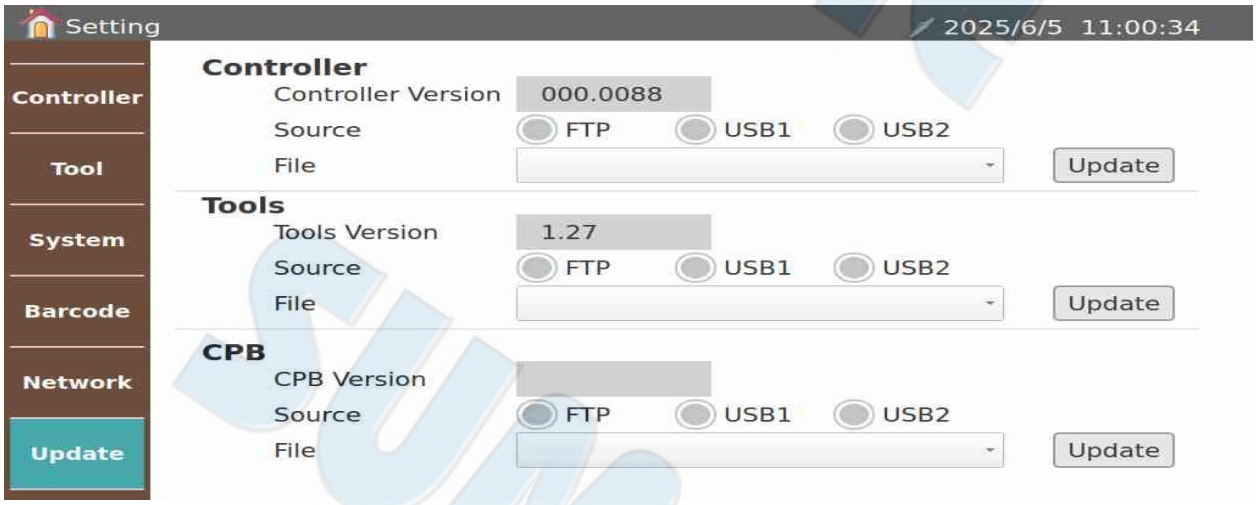
System Management	Description
Barcode Master List	Displays the list of created job IDs and barcode contents.
Barcode	Real-time display area for scanned barcodes. Barcode content does not support single quotes (‘). If single quotes are used, they will be replaced with double quotes (“) due to length constraints.
From	Set the starting character position for barcode matching in each job/process.Range: 1–100 characters Default: 1
Count	Number of characters to match starting from the defined position.After scanning, the total character count of the barcode will be displayed. Range: 1–100 characters Default: 1
Barcode Mode	Barcode Mode SelectionBarcode Stop (BS)、Barcode Stop (Process Switchable)、Switch Job / Process Default: Barcode Stop Barcode Stop (BS) Job-based mode: After scanning the configured barcode, the system switches to the corresponding job and disables restrictions (Disable). Once the job is triggered, process switching or scanning any other barcode is not allowed during execution. The barcode will be cleared only after the job is completed. Barcode Stop (Process Switchable) - BS(Free):Job-based mode: After scanning the configured barcode, the system switches to the corresponding job and disables restrictions (Disable). Once the job is triggered, process switching and barcode scanning to switch jobs or processes (limited to barcodes listed in the master list) are allowed during execution. The barcode will be cleared only after the job is completed. Switch Job / Process (Switch Job / Seq.):Process-based mode: After scanning the configured barcode, the system switches to the corresponding process. After scanning, users can switch to different processes or switch to other jobs again. During execution, barcodes can be scanned at any time to update the fastening barcode data. The barcode will be cleared when the process is completed.
Select Job	Select the job corresponding to the scanned barcode.Only available in Switch Job / Process mode. In other modes, saved jobs cannot be selected and will appear grayed out.
Select Sequence	Select the process corresponding to the scanned barcode. The "Select Process" menu is only displayed when the "Switch Job / Process" mode is selected. Only in "Switch Job / Process" mode can you select other processes under the same job.
Save	Save the settings on this page.
Delete	Delete the selected barcode from the master list.

5-4-5. Internet



Network Settings	Description
Network Mode	Dynamic Wired Network / Static Wired Network
Network IP	Displays the current IP address of the controller.
Subnet Mask	Configure the subnet mask for the controller's network connection. Default: 255.255.255.0
Gateway IP	Configure the default gateway IP address for the controller. Default: 0.0.0.0
Set Static IP	Configure the static IP address for the controller. Default: 0.0.0.0
Port	Set the communication port used to connect to the server. Default: 502
Save	Save the settings on this page.

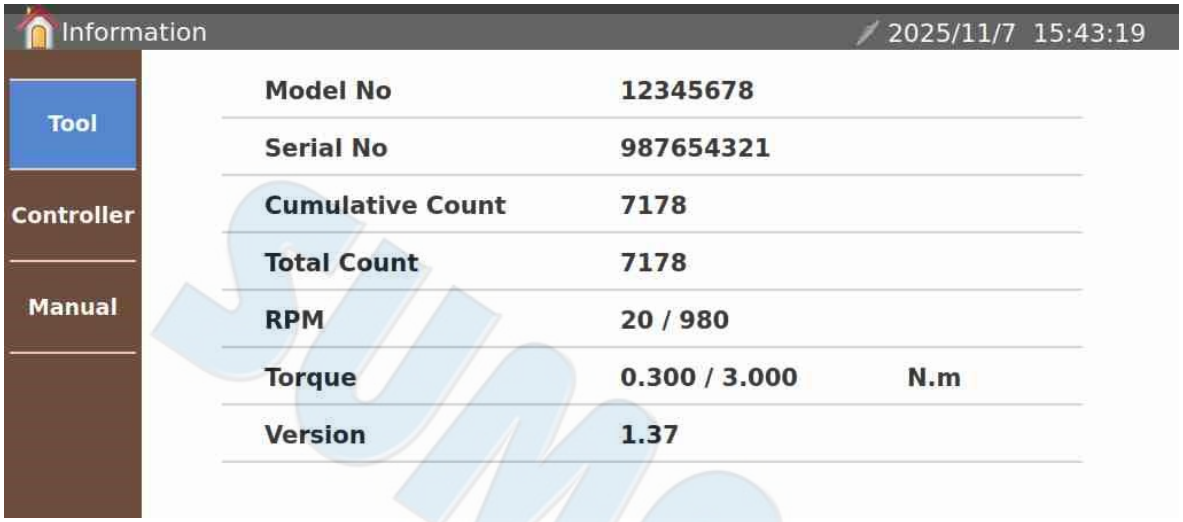
5-4-6 Update



Controller Update	Description
Controller Version	Displays the current version of the controller. (* New feature: whitelist version can be updated, e.g., auto_remove_VU.001)
Source	Import updated version by selecting the source: FTP / USB1 / USB2
File	Select a .zip file for update (e.g., NTCS7_ALL_V0089.zip)
Update	Start executing the update.
Screwdriver Firmware Update	**Description**
Tools Version	Displays the current firmware version of the screwdriver.
Source	Import the update by selecting the source: FTP / USB1 / USB2
File	Select a .bin file for the update. Example: NTMD_20250528_V1p27_N_P.bin
Start	Begin executing the firmware updat
Power Board Firmware Update	**Description**
CPB Version	Displays the current firmware version of the power board.
Source	Select the update source: FTP / USB1 / USB2
File	Select a .bin file for the update. Example: PowerBoard_20250528_V1p10.bin ◦
Start	Begin executing the power board firmware update ◦

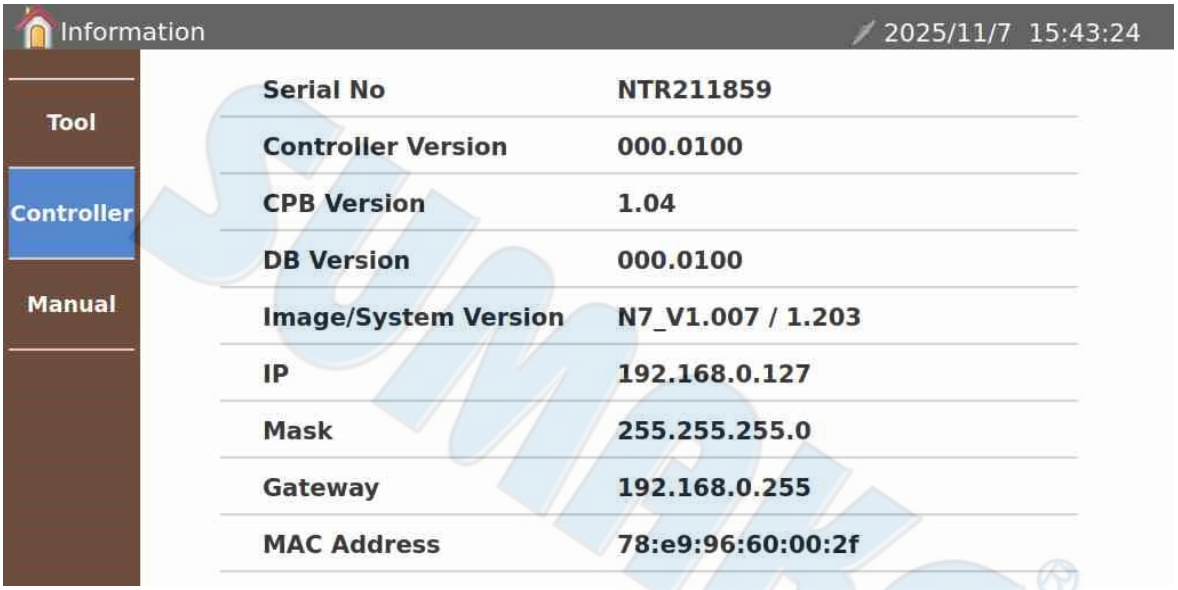
5-5. Information

5-5-1. TOOl



Tool Information	Description
Model No	Display the tool model.
Serial No	Display the tool's serial number.
Cumulatlve Count	Display the number of maintenance operations. (When the count reaches 1,000,000, the homepage will show an EOC alert.)
Total Count	Display the total number of fastenings performed by the tool.
Rotation Speed(RPM)	Display the tool's minimum and maximum rotation speed values.
Torque	Display the tool's minimum and maximum torque values.
Version	Display the tool's software version.

5-5-2. Controller

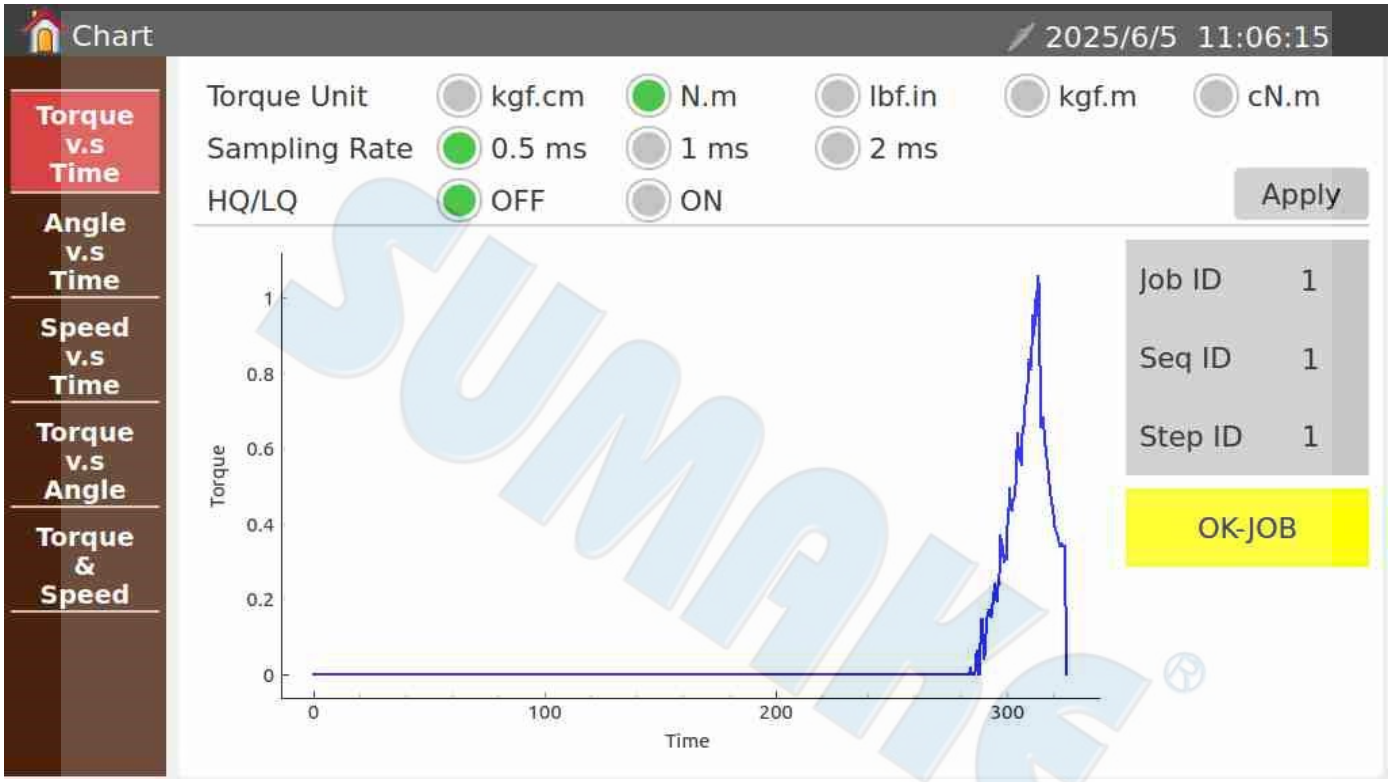


Controller Information	Description
Serial No	Display the controller's serial number.
Controller Version	Display the controller's version.
CPB Version	Display the firmware version of the power board.
Database Version	Display the current database version.
Image Version	Display the current image version.
IP	Display the current IP address of the controller.
Mask	Set the subnet mask for the controller's network connection.
Gateway	Set the default gateway IP for the controller's network connection.
(MAC) Address	Display the controller's MAC address.

5-5-3. Manual

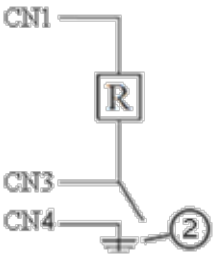
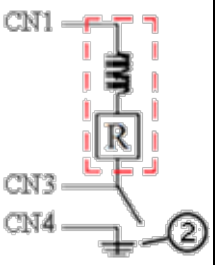
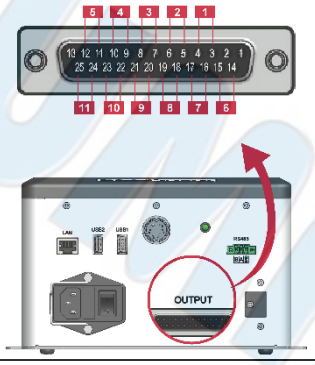
Manual Information	Description
QR Code	Display a QR code that provides the download link for the user manual.

5-6. Chart

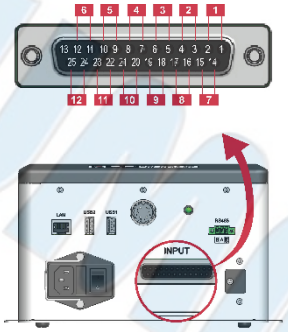
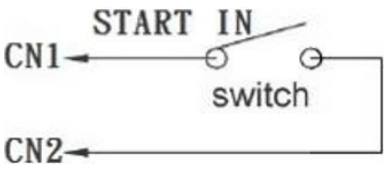


Curve Chart Settings	Description
Chart	Select Display Chart Torque vs Time : Horizontal Time,Vertical Torque. Angle vs Time : Horizontal Time,Vertical Angle. Rotation Speed vs Time : Horizontal Time,Vertical Rotation Speed. Torque vs Angle : Horizontal Angle,Vertical Torque. Torque & Rotation Speed : Horizontal Time,Left Vertical Torque,Right Vertical Rotation Speed.
Torque Unit	Kgf.cm / N.m / lbf.in / kgf.m / N.cm 。
Sampling Rate	Select Outpu Sampling Rate0.5 (ms) / 1 (ms) / 2 (ms)。
HQ/LQ	Off: Do not display upper and lower limit guide lines. On: Display upper and lower limit guide lines. Default: Off.
Apply	Apply angle settings.
Angle	Select Display Mode: Step Angle / Total Angle Step Angle: The angle of the last step. Total Angle: The total accumulated angle calculated from the start of the tool operation. Default: Step Angle
Curve Chart	Displays the position of the fastening curve chart.
Job ID	Displays the executing Job ID.
Seq ID	Displays the executing Process ID.
Step ID	Displays the executing Step ID.
Status	Displays the fastening status.

6. External output control function description

<table>
<tr><th>Connector No</th><th>Self-definition</th><th>Description</th><th>Ordinary load</th><th>Inductive load</th></tr>
<tr><td>CN 1</td><td>Vdc</td><td>The voltage output of controller is DC+12V/100mA or +24V/50mA.
Default: +24V/50mA (+12V/100mA is also applicable)</td><td rowspan="3"> 
</td><td rowspan="3"> 
</td></tr>
<tr><td>CN 2</td><td>GND</td><td>Power output GND</td></tr>
<tr><td>CN 3</td><td>Example:
OK</td><td rowspan="2">OK: CN3 and CN4 are connected when a screwdriver is initiated.
CN3 + CN4 are connected when short-circuited
CN3 + CN4 are disconnected when open-circuited1+CN4
 
</td></tr>
<tr><td>CN 4</td><td>COM</td></tr>
<tr><td>Output state definition</td><td colspan="2">OK
NG
NG-High: Exceed upper limit.
NG-Low: Lower than lower limit.
OK-Sequence: Sequence completion signal
OK-JOB: Job completion signal</td><td colspan="2">Tool Running: Motor signal
Tool Trigger: Initiating signalReverse Reverse
BS: Barcode Stop
Barcode
UserDefine1: Self-definition 1</td><td>UserDefine2: Self-definition 2
UserDefine3: Self-definition 3
UserDefine4: Self-definition 4
UserDefine5: Self-definition 5</td></tr>
</table>

7. External input control function description

<table>
<tr><th>Connector No</th><th>Self-definition</th><th>Description</th><th></th></tr>
<tr><td>CN 3</td><td>Example:
START IN</td><td rowspan="2">1. When CN3 + CN4 is (CLOSE), screwdriver is initiated.
2. When CN3+CN4 is (OPEN), screwdriver stops running
 
</td><td rowspan="2"> 
</td></tr>
<tr><td>CN 4</td><td>GND</td></tr>
<tr><td>Input state definition</td><td colspan="2">Disable: Not used
Enable: Able to use
Clear: Clear the counts
Confirm: Make confirmation
Start IN: Start
Reverse: Screw removing
Sequence Clear: Clear sequence
Reboot: Restart</td><td>Gate Once: Trigger-once sensing
UserDefine1: Self-definition 1
UserDefine2: Self-definition 2
UserDefine3: Self-definition 3
UserDefine4: Self-definition 4
UserDefine5: Self-definition 5
FreeRotate</td><td>Skip the operation step</td></tr>
</table>

Remark:

※ For the INPUT contact, if the non-isolated (wet contact) control method is used, a 10K resistor shall be connected in series on the wiring to prevent equipment damage.

※ CN1(V+) and CN2(GND) can supply DC+24V (default). (DC +12V needs to be customized)

※ If user needs other DC voltage, users must use step-down circuit to step down voltage.

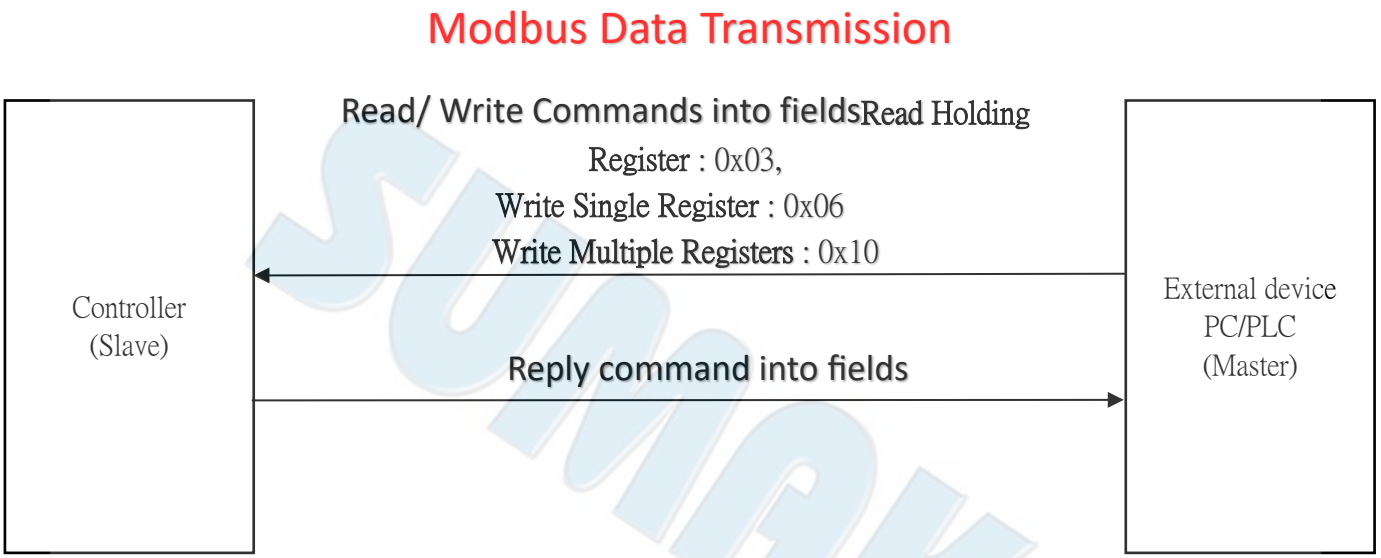
※ If user needs input voltage to drive the police instrument, the input voltage should not exceed DV+/-40V, +/-1A, max:10w (use MOS RELAY I/O version))

8. Description of display status code

8.1 Abnormal messages from controller/screwdriver/lock information

Code	Error message	Description
1	NO-ERR	NO Error
2	ERR-MOT-TEMP	Temperature Error
3	ERR-HALL	Stall Protection
4	ERR-MOT-CURR	Overcurrent Protection
5	ERR-TMD-FRAM	TMD Communication Error
6	ERR-ENCODER	Sensor Error
7	ERR-DMS-COMM	Wrong Tool Connected
8	ERR-PROC-MAXTIME	Timeout Failure
9	Interrupt Alarm	Interruption Alarm
10	ERR-HIGH-ANGLE	Step Angle Upper Limit Error
11	ERR-LOW-ANGLE	Step Angle Lower Limit Error
12	ERR-HIGH-TORQUE	Torque Upper Limit Error
13	ERR-LOW-TORQUE	Torque Lower Limit Error

9. Modbus Instruction



Communication method uses MODBUS TCP/ MODBUS RTU standard protocol.

Connection methods are:

- **TCP connection and setup:**
  1. **Selecting LAN-DHCP or LAN-STATIC from controller.**
  2. **Configuring the controller's IP to be on the same domain as the PC's. (Find out an IP from LAN-DHCP or select/ setup an IP address from STSTIC IP or GATEWAY IP.)**
  3. **Setting the Server port (default is 502) and click SAVE.**

- RS-485 connection and setup
  BAUDRATE configuration: 115200/ Data bits: 8/ Stop bits: 1/ Parity: None/ Flow Control: Xon/ Xoff.

MODBUS PDU：

- Using Big-Endian as data placement format
- Read Funcode code supports Read Holding Registers
- Write Funcode code supports Write signal Register/ Write Multiple Registers

  (If writing multiple addresses in ASCII, only Write Multiple Registers is supported.)

Note 1: To use command control for the screwdriver, set the screwdriver to Remote Start (Go to Settings > Tools > Tool Settings > Start Settings > Remote Start).

Note 2: When using command control to start the screwdriver (ON), remember to turn off the start (OFF) when other operations are required.

Supported Versions: Controller Version V066 and above.
For the Modbus communication document (Read/Set Fields), please contact the original manufacturer.

Chart 1 Controller Data fields

TCP/RTU Torque Reading as below:

Request

Device ID	Function Code	Start address High	Start address Low	No of address High	No of address Low	CRC16 Low	CRC16 High
01	03	10	3B	00	02	B1	06

Response

Device ID	Function Code	No of byte	Data #1 High	Data #1 Low	... x n data		CRC16 Low	CRC16 High
01	03	04	00	00	00	33	BA	26

add (Hex)	add (DEC)	Length	Parameter INS	Parameter area	Function Code
103B	4155	2	Tightening Torque* 100	0~TOOL MAX	0x03

Char2. Controller function setting address

TCP/RTU An example of setting the screwdriver to start is as follows:

Request

Device ID	Function Code	Address High	Address Low	Date High	Data Low	CRC16 Low	CRC16 High
01	06	01	C8	00	01	C8	08

Response

Device ID	Function Code	Address High	Address Low	Date High	Data Low	CRC16 Low	CRC16 High
01	06	01	C8	00	01	C8	08

add (Hex)	add (DEC)	Length	Parameter INS	Parameter area	Function Code
01C8	456	1	Screwdriver Starting	0: off	

Our company reserves the right to modify the product without prior notice.